

SEQUENCE LISTING

<110> Moss, Bernard
Wyatt, Linda
Earl, Patricia
Robinson, Harriet

<120> MVA EXPRESSING MODIFIED HIV ENVELOPE,
GAG, AND POL GENES

<130> NIH211.001C1

<150> PCT/US02/06713

<151> 2002-03-01

<150> US 60/274,434

<151> 2001-03-08

<160> 13

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 12225

<212> DNA

<213> Artificial Sequence

<220>

<223> Plasmid pLW-48

<400> 1

```

gaattcggtg gtggtcgcca tggatgggtg tattgtatac tgtctaaacg cgtagtaaaa 60
acatggcgag gaaataaatc atataaaaaa tgatttcatt attaaacat gttgtgaaaa 120
agtcaagaac gttcacattg gcggacaatc taaaaacaat acagtgattg cagatttgcc 180
atatatggat aatgcggtat ccgatgtatg caattcactg tataaaaaga atgtatcaag 240
aatatccaga tttgctaatt tgataaagat agatgacgat gacaagactc ctactgggtg 300
atataattat tttaaaccta aagatgccat tcctgttatt atatccatag gaaaggatag 360
agatgtttgt gaactattaa tctcatctga taaagcgtgt gcgtgtatag agttaaattc 420
atataaagta gccattcttc ccattggatg ttcttttttt accaaaggaa atgcatcatt 480
gattattctc ctgtttgatt tctctatcga tgcggcacct ctcttaagaa gtgtaaccga 540
taataatgtt attatatcta gacaccagcg tctacatgac gagcttccga gttccaattg 600
gttcaagttt tacataagta taaagtccga ctattgttct atattatata tgggtgttga 660
tggatctgtg atgcatgcaa tagctgataa tagaacttac gcaaataata gcaaaaatat 720
attagacaat actacaatta acgatgagtg tagatgctgt tattttgaac cacagattag 780
gattcttgat agagatgaga tgctcaatgg atcatcgtgt gatatgaaca gacattgtat 840
tatgatgaat ttacctgatg taggcgaatt tggatctagt atgttgggga aatatgaacc 900
tgacatgatt aagattgctc tttcgggtggc tgggtaccag gcgcgccttt cattttgttt 960
ttttctatgc tataaatggt acgtcctgta gaaaccccaa cccgtgaaat caaaaaactc 1020
gacggcctgt gggcattcag tctggatcgc gaaaactgtg gaattgatca gcgttggtgg 1080
gaaagcgcgt tacaagaaag ccgggcaatt gctgtgccag gcagttttta cgatcagttc 1140
gccgatgcag atattcgtaa ttatgcgggc aacgtctggt atcagcgcga agtctttata 1200
ccgaaagggt gggcaggcca gcgtatcgtg ctgcgtttcg atgcggtcac tcattacggc 1260
aaagtgtggg tcaataatca ggaagtgatg gagcatcagg gcggctatac gccatttgaa 1320
gccgatgtca cgccgtatgt tattgccggg aaaagtgtac gtatcacctg ttgtgtgaac 1380
aacgaactga actggcagac tatcccgccg ggaatggtga ttaccgacga aaacggcaag 1440
aaaaagcagt cttacttcca tgatttcttt aactatgccg gaatccatcg cagcgtaaatg 1500

```

NIH211C1SEQLIST.TXT

ctctacacca	cgccgaacac	ctgggtggac	gatatcaccg	tgggtgacgca	tgtcgcgcaa	1560
gactgtaacc	acgcgtctgt	tgactggcag	gtgggtggcca	atgggtgatgt	cagcgttgaa	1620
ctgcgtgatg	cggatcaaca	ggtgggttga	actggacaag	gcactagcgg	gactttgcaa	1680
gtgggtgaatc	cgcacctctg	gcaaccgggt	gaaggttatc	tctatgaact	gtgcgtcaca	1740
gccaaaagcc	agacagagtg	tgatatctac	ccgcttcgcg	tcggcatccg	gtcagtggca	1800
gtgaagggcg	aacagttcct	gattaaccac	aaaccgttct	actttactgg	ctttgggtcgt	1860
catgaagatg	cggacttgcg	tggaacagga	ttcgataacg	tgctgatggt	gcacgaccac	1920
gcattaatgg	actggattgg	ggccaactcc	taccgtacct	cgcattaccc	ttacgctgaa	1980
gagatgctcg	actgggcaga	tgaacatggc	atcgtggtga	ttgatgaaac	tgctgctgtc	2040
ggctttaacc	tctctttagg	cattggtttc	gaagcgggca	acaagccgaa	agaactgtac	2100
agcgaagagg	cagtcaacgg	ggaaactcag	caagcgcact	tacaggcgat	taaagagctg	2160
atagcgcgtg	acaaaaacca	cccaagcgtg	gtgatgtgga	gtattgcca	cgaaccggat	2220
acccgtccgc	aaggtgcacg	ggaatatattc	gcgccactgg	cgggaagcaac	gcgtaaaactc	2280
gacccgacgc	gtccgatcac	ctgcgtcaat	gtaatgttct	gcgacgctca	caccgatacc	2340
atcagcgate	tctttgatgt	gctgtgcctg	aaccgttatt	acggatggta	tgtccaaagc	2400
ggcgattttg	aaacggcaga	gaaggtactg	gaaaaagaac	ttctggcctg	gcaggagaaa	2460
ctgcatcagc	cgattatcat	caccgaatac	ggcgtggata	cgtagccgg	gctgcactca	2520
atgtacaccg	acatgtggag	tgaagagtat	cagtgtgcat	ggctggatat	gtatcaccgc	2580
gtctttgatc	gcgtcagcgc	cgtcgtcggg	gaacaggat	ggaatttcgc	cgattttgcg	2640
acctcgcaag	gcataattgcg	cgttggcggg	aacaagaaag	ggatcttcac	tcgcgaccgc	2700
aaaccgaagt	cggcggcctt	tctgctgcaa	aaacgctgga	ctggcatgaa	cttcgggtgaa	2760
aaaccgcagc	agggaggcaa	acaatgagag	ctcggttgtt	gatggatctg	tgatgcatgc	2820
aatagctgat	aatagaactt	acgcaaatat	tagcaaaaat	atattagaca	atactacaat	2880
taacgatgag	tgtagatgct	gttattttga	accacagatt	aggattcttg	atagagatga	2940
gatgctcaat	ggatcatcgt	gtgatatgaa	cagacattgt	attatgatga	atttacctga	3000
tgtaggcgaa	tttggatcta	gtatgttggg	gaaatatgaa	cctgacatga	ttaagattgc	3060
tctttcgggtg	gctggcggcc	cgctcgagta	aaaaatgaaa	aaatattcta	atttatagga	3120
cggttttgat	tttctttttt	tctatgctat	aaataataaa	tagcggccgc	accatgaaag	3180
tgaaggggat	caggaagaat	tatcagcact	tgtggaaatg	gggcatcatg	ctccttggga	3240
tgttgatgat	ctgtagtgt	gtagaaaatt	tgtgggtcac	agttttattat	ggggtacctg	3300
tgtggaaaga	agcaaccacc	actctatttt	gtgcatcaga	tgctaaagca	tatgatacag	3360
aggtacataa	tgtttgggcc	acacatgcct	gtgtacccac	agaccccaac	ccacaagaag	3420
tagtattgga	aaatgtgaca	gaaaatttta	acatgtggaa	aaataacatg	gtagaacaga	3480
tgcatgagga	tataatcagt	ttatgggatc	aaagcctaaa	gccatgtgta	aaattaaccc	3540
cactctgtgt	tactttaaat	tgactgtatt	tgaggaaatg	tactaatatc	aataatagta	3600
gtgagggaat	gagaggagaa	ataaaaaact	gctctttcaa	tatcaccaca	agcataagag	3660
ataaggtgaa	gaaagactat	gcacttttct	atagacttga	tgtagtacca	atagataatg	3720
ataatactag	ctatagggtg	ataaattgta	atacctcaac	cattacacag	gcctgtccaa	3780
aggtatcctt	tgagccaatt	cccatacatt	attgtacccc	ggctggtttt	gcgattctaa	3840
agtgtaaaga	caagaagtgc	aatggaacag	ggccatgtaa	aaatgtcagc	acagtacaat	3900
gtacacatgg	aattaggcca	gtagtgtcaa	ctcaactgct	gttaaatggc	agtctagcag	3960
aagaagaggt	agtaattaga	tctagtaatt	tcacagacaa	tgcaaaaaac	ataatagtac	4020
agttgaaaga	atctgtagaa	attaattgta	caagacccaa	caacaataca	aggaaaagta	4080
tacatatagg	accaggaaga	gcattttata	caacaggaga	aataatagga	gatataagac	4140
aagcacattg	caacatttagt	agaacaaaat	ggaataacac	tttaaatcaa	atagctacaa	4200
aattaaaaga	acaatttggg	aataataaaa	caatagtctt	taatcaatcc	tcaggagggg	4260
accagaaat	tgtaatgcac	agtttttaatt	gtggagggga	attcttctac	tgtaattcaa	4320
cacaactgtt	taatagtact	tggaatttta	atgggtacttg	gaatttaaca	caatcgaatg	4380
gtactgaagg	aaatgacact	atcacactcc	catgtagaat	aaaacaaatt	ataaatatgt	4440
ggcaggaagt	aggaaaagca	atgtatgccc	ctcccatcag	aggacaaatt	agatgctcat	4500
caaataattac	agggctaata	ttaacaagag	atgggtggaac	taacagtagt	gggtccgaga	4560
tcttcagacc	tgggggagga	gatatgaggg	acaattggag	aagtgaatta	tataaatata	4620
aagtagtaaa	aattgaacca	ttaggagtag	caccacccaa	ggcaaaaaga	agagtgggtgc	4680
agagagaaaa	aagagcagtg	ggaacgatag	gagctatgtt	ccttgggttc	ttgggagcag	4740
caggaagcac	tatgggcgca	gcgtcaataa	cgctgacggg	acaggccaga	ctattattgt	4800
ctggtatagt	gcaacagcag	aacaatttgc	tgagggctat	tgaggcgcaa	cagcatctgt	4860
tgcaactcac	agtctggggc	atcaagcagc	tccaggcaag	agtcctggct	gtggaaagat	4920
acctaaggga	tcaacagctc	ctagggattt	gggggttgctc	tggaaaactc	atctgcacca	4980

ctgctgtgcc	ttggaatgct	agttggagta	ataaaactct	ggatatgatt	tgggataaca	5040
tgacctggat	ggagtgggaa	agagaaatcg	aaaattacac	aggcttaata	tacaccttaa	5100
ttgaggaatc	gcagaaccaa	caagaaaaga	atgaacaaga	cttatttagca	ttagataagt	5160
gggcaagttt	gtggaattgg	tttgacatat	caaattggct	gtggtagta	aaaatcttca	5220
taatgatagt	aggaggcttg	ataggtttaa	gaatagtttt	tactgtactt	tctatagtaa	5280
atagagttag	gcaggggatac	tcaccattgt	catttcagac	ccacctccca	gccccgaggg	5340
gacccgacag	gcccgaagga	atcgaagaag	aaggtggaga	cagagactaa	tttttatgcg	5400
gccgctggta	cccaacctaa	aaattgaaaa	taaatacaaa	ggttcttgag	ggttgtgtta	5460
aattgaaagc	gagaaataat	cataaataag	cccggggatc	ctctagagtc	gacaccatgg	5520
gtgcgagagc	gtcagtatta	agcgggggag	aattagatcg	atgggaaaaa	attcgggtta	5580
ggccaggggg	aaagaaaaaa	tataaattaa	aacatatagt	atgggcaagc	aggagagctag	5640
aacgattcgc	agttaatcct	ggcctgttag	aaacatcaga	aggctgtaga	caaatactgg	5700
gacagctaca	accatccctt	cagacaggat	cagaagaact	tagatcatta	tataatacag	5760
tagcaaccct	ctattgtgtg	catcaaagga	tagagataaa	agacaccaag	gaagctttag	5820
acaagataga	ggaagagcaa	aacaaaagta	agaaaaaagc	acagcaagca	gcagctgaca	5880
caggacacag	caatcaggtc	agccaaaatt	accctatagt	gcagaacatc	caggggcaaa	5940
tggtagatca	ggccatatca	cctagaactt	taaatgcatg	ggtaaaagta	gtagaagaga	6000
aggctttcag	cccagaagtg	ataccatgt	tttcagcatt	atcagaagga	gccacccac	6060
aagatttaaa	caccatgcta	aacacagtgg	ggggacatca	agcagccatg	caaagttaa	6120
aagagaccat	caatgaggaa	gctgcagaat	gggatagagt	gcacccagtg	catgcagggc	6180
ctattgcacc	aggccagatg	agagaaccaa	ggggaagtga	catagcagga	actactagta	6240
cccttcagga	acaaatagga	tggatgacaa	ataatccacc	tatcccagta	ggagaaattt	6300
ataaaagatg	gataatcctg	ggattaaata	aaatagtaag	aatgtatagc	cctaccagca	6360
ttctggacat	aagacaagga	ccaaaagaac	ccttttagaga	ctatgtagac	cggttctata	6420
aaactctaag	agccgagcaa	gcttcacagg	aggtaaaaaa	ttggatgaca	gaaaccttgt	6480
tgggtccaaa	tgcgaaccca	gattgtaga	ctatttttaa	agcattggga	ccagcggcta	6540
cactagaaga	aatgatgaca	gcatgtcagg	gagtaggagg	acccggccat	aaggcaagag	6600
ttttggctga	agcaatgagc	caagtaacaa	attcagctac	cataatgatg	cagagaggca	6660
attttaggaa	ccaaagaaag	attgttaagt	gtttcaattg	tggcaaagaa	gggcacacag	6720
ccagaaattg	cagggcccct	aggaaaaagg	gctgttgga	atgtggaaag	gaaggacacc	6780
aatgaaaga	ttgtactgag	agacaggcta	attttttagg	gaagatctgg	ccttcctaca	6840
agggaaggcc	agggaatttt	cttcagagca	gaccagagcc	aacagcccca	ccagaagaga	6900
gcttcaggtc	tggggtagag	acaacaactc	cccctcagaa	gcaggagccg	atagacaagg	6960
aactgtatcc	tttaacttcc	ctcagatcac	tctttggcaa	cgacccctcg	tcacaataaa	7020
gatagggggg	caactaaagg	aagctctatt	agatacagga	gcagatgata	cagtattaga	7080
agaaatgagt	ttgccaggaa	gatggaaacc	aaaaatgata	gggggaattg	gagggtttat	7140
caaagtaaga	cagtatgac	agatactcat	agaaatctgt	ggacataaag	ctataggtac	7200
agtattagta	ggacctacac	ctgtcaacat	aattggaaga	aatctgttga	ctcagattgg	7260
ttgcacttta	aattttccca	ttagccctat	tgagactgta	ccagtaaaat	taaagccagg	7320
aatggatggc	ccaaaagtta	aacaatggcc	attgacagaa	gaaaaaataa	aagcattagt	7380
agaaatttgt	acagaaatgg	aaaagggaag	gaaaatttca	aaaattgggc	ctgagaatcc	7440
atacaatact	ccagtatttg	ccataaagaa	aaaagacagt	actaaatgga	ggaaattagt	7500
agatttcaga	gaacttaata	agagaactca	agacttctgg	gaagttcaat	taggaatacc	7560
acatcccgc	gggttaaaaa	agaaaaaatc	agtaacagta	ctggatgtgg	gtgatgcata	7620
tttttcagtt	cccttagatg	aagacttcag	gaagtatact	gcatttacca	tacctagtat	7680
aaacaatgag	acaccaggga	ttagatatca	gtacaatgtg	cttccacagg	gatggaaagg	7740
atcaccagca	atattccaaa	gtagcatgac	aaaaatctta	gagcctttta	aaaaacaaaa	7800
tccagacata	gttatctatc	aatacatgaa	cgatttgtat	gtaggatctg	acttagaaat	7860
agggcagcat	agaacaaaaa	tagaggagct	gagacaacat	ctgttgaggt	ggggacttac	7920
cacaccagac	aaaaaacatc	agaaagaacc	tccattcctt	tggatgggtt	atgaactcca	7980
tcctgataaa	tggacagtac	agcctatagt	gctgccagaa	aaagacagct	ggactgtcaa	8040
tgacatacag	aagttagtgg	ggaaattgaa	taccgcaagt	cagattttacc	cagggattaa	8100
agtaaggcaa	ttatgtaaac	tccttagagg	aaccaaagca	ctaacagaag	taataccact	8160
aacagaagaa	gcagagctag	aactggcaga	aaacagagag	attctaaaag	aaccagtaca	8220
tggagtgtat	tatgacccat	caaaagactt	aatagcagaa	atacagaagc	aggggcaagg	8280
ccaatggaca	tatcaaattt	atcaagagcc	atttaaaaaa	ctgaaaacag	gaaaatatgc	8340
aagaatgagg	ggtgccccaca	ctaagatgt	aaaacaatta	acagaggcag	tgcaaaaaat	8400
aaccacagaa	agcatagtaa	tatggggaaa	gactcctaaa	tttaaactac	ccatacaaaa	8460

NIH211C1SEQLIST.TXT

ggaaacatgg	gaaacatggt	ggacagagta	ttggcaagcc	acctggattc	ctgagtggga	8520
gtttgttaat	acccctcctt	tagtgaaatt	atggtaccag	ttagagaaag	aacccatagt	8580
aggagcagaa	accttctatg	tagatggggc	agctaacagg	gagactaaat	taggaaaagc	8640
aggatatggt	actaacaag	gaagacaaaa	ggttgtcccc	ctaactaaca	caacaaatca	8700
gaaaactcag	ttacaagcaa	tttatctagc	tttgcaggat	tcaggattag	aagtaaacad	8760
agtaacagac	tcacaatatg	cattaggaat	cattcaagca	caaccagata	aaagtgaatc	8820
agagttagtc	aatcaaataa	tagagcagtt	aataaaaaag	gaaaagggtc	atctggcatg	8880
ggtaccagca	cacaaaggaa	ttggaggaaa	tgaacaagta	gataaattag	tcagtgcctg	8940
aatcaggaaa	atactatttt	tagatggaat	agataaggcc	caagatgaac	attagttttt	9000
atgtcgacct	gcagggaaag	ttttataggt	agttgataga	acaaaataca	taattttgta	9060
aaaataaatc	actttttata	ctaatatgac	acgattacca	atacttttgt	tactaatatc	9120
attagtatac	gctacacctt	ttcctcagac	atctaaaaaa	atagggtgatg	atgcaacttt	9180
atcatgtaat	cgaaataata	caaatgacta	cgttgttatg	agtgcctggg	ataaggagcc	9240
caattccatt	attcttttag	ctgctaaaag	cgacgtcttg	tattttgata	attataccaa	9300
ggataaaaata	tcttacgact	ctccatacga	tgatctagtt	acaactatca	caattaaatc	9360
attgactgct	agagatgccg	gtacttatgt	atgtgcattc	tttatgacat	cgccatacaa	9420
tgacactgat	aaagtagatt	atgaagaata	ctccacagag	ttgattgtaa	atacagatag	9480
tgaatcgact	atagacataa	tactatctgg	atctacacat	tcaccagaaa	ctagttaagc	9540
ttgtctccct	atagttagtc	gtattagagc	ttggcgtaat	catggtcata	gctgtttcct	9600
gtgtgaaatt	gttatccgct	cacaattcca	cacaacatac	gagccggaag	cataaagtgt	9660
aaagcctggg	gtgcctaata	agtgaagctaa	ctcacattaa	ttgcgttgcc	ctcactgccc	9720
gctttcgagt	cgggaaacct	gtcgtgccag	ctgcattaat	gaatcgcca	acgcgcgggg	9780
agaggcggtt	tgcgatttgg	gcgctcttcc	gcttcctcgc	tcactgactc	gctgcgctcg	9840
gtcgttcggc	tgcggcgagc	ggtatcagct	cactcaaagg	cggtaatatc	gttatccaca	9900
gaatcagggg	ataacgcagg	aaagaacatg	tgagcaaaa	gccagcaaaa	ggccagggaac	9960
cgtaaaaagg	ccgcgttgct	ggcggttttt	gataggctcc	gccccctga	cgagcatcac	10020
aaaaatcgac	gctcaagtca	gaggtggcga	aaccgcagag	gactataaag	ataccaggcg	10080
tttccccctg	gaagctccct	cgtgcgctct	cctgttccga	ccctgccgct	taccggatac	10140
ctgtccgcct	ttctcccttc	gggaagcgtg	gcgctttctc	atagctcacg	ctgtagggtat	10200
ctcagttcgg	tgtaggtcgt	tcgctccaag	ctgggctgtg	tgacgaacc	ccccgttcag	10260
cccgaccgct	gcgccttata	cggtaactat	cgtcttgagt	ccaaccggt	aagacacgac	10320
ttatcgccac	tggcagcagc	cactggtaac	aggattagca	gagcgaggta	tgtaggcggt	10380
gctacagagt	tcttgaagtg	gtggcctaac	tacggctaca	ctagaaggac	agtatttggt	10440
atctgcgctc	tgtgaagcc	agttaccttc	ggaaaaagag	ttggtagctc	ttgatccggc	10500
aaacaaacca	ccgctggtag	cgggtggttt	tttgtttgca	agcagcagat	tacgcgcaga	10560
aaaaaaggat	ctcaagaaga	tcctttgatc	ttttctacgg	ggtctgacgc	tcagtggaaac	10620
gaaaactcac	gttaagggat	tttgggtcatg	agattatcaa	aaaggatctt	cacctagatc	10680
cttttaaat	aaaaatgaag	ttttaaatca	atctaaagta	tatatgagta	aacttgggtc	10740
gacagttacc	aatgcttaat	cagtgaaggca	cctatctcag	cgatctgtct	atttcggtca	10800
tccatagtgt	cctgactccc	cgtcgtgtag	ataactacga	tacgggaggg	cttaccatct	10860
ggccccagtg	ctgcaatgat	accgcgagac	ccacgctcac	cggtccaga	tttatcagca	10920
ataaaccagc	cagccggaag	ggccgagcgc	agaagtggtc	ctgcaacttt	atccgcctcc	10980
atccagtcta	ttaattgttg	ccgggaagct	agagtaagta	gttcgccagt	taatagtttg	11040
cgcaacgttg	ttggcattgc	tacaggcatc	gtgggtgtac	gctcgtcgtt	tggtatggct	11100
tcattcagct	ccggttccca	acgatcaagg	cgagttacat	gatcccccat	gttgtgcaaa	11160
aaagcgggta	gctccttcgg	tcctccgata	gttgtcagaa	gtaagtggc	cgcagtgtta	11220
tcactcatgg	ttatggcagc	actgcataat	tctcttactg	tcatgccatc	cgtaagatgc	11280
ttttctgtga	ctggtgagta	ctcaaccaag	tcattctgag	aatagtgtat	gcggcgaccg	11340
agttgctctt	gcccggcgct	aatacgggat	aataccgcgc	cacatagcag	aactttaaaa	11400
gtgctcatca	ttggaaaacg	ttcttcgggg	cgaaaactct	caaggatctt	accgctgttg	11460
agatccagtt	cgatgtaacc	cactcgtgca	cccaactgat	cttcagcatc	ttttactttc	11520
accagcgttt	ctgggtgagc	aaaaacagga	aggcaaaatg	ccgcaaaaaa	gggaataagg	11580
gcgacacgga	aatgttgaat	actcatactc	ttcctttttc	aatattattg	aagcatttat	11640
cagggttatt	gtctcatgag	cggatacata	tttgaatgta	tttagaaaaa	taaacaaata	11700
ggggttccgc	gcacatttcc	ccgaaaagtg	ccacctgacg	tctaagaaac	cattattatc	11760
atgacattaa	cctataaaaa	taggcgtatc	acgaggccct	ttcgtctcgc	gcgtttcggt	11820
gatgacgggt	aaaacctctg	acacatgcag	ctcccggaga	cggtcacagc	ttgtctgtaa	11880
gcggatgccg	ggagcagaca	agcccgtcag	ggcgcgctcag	cggtgtttgg	cggtgtcgg	11940

NIH211C1SEQLIST.TXT

```

ggctggctta actatgcggc atcagagcag attgtactga gagtgcacca tatgcggtgt 12000
gaaataccgc acagatgcgt aaggagaaaa taccgcatca ggcgccattc gccattcagg 12060
ctgcgcaact gttgggaagg gcgatcgggtg cgggcctctt cgctattacg ccagctggcg 12120
aaagggggat gtgctgcaag gcgattaagt tgggtaacgc cagggttttc ccagtcacga 12180
cgttgtaaaa cgacggccag tgaattggat ttaggtgaca ctata 12225

```

<210> 2
 <211> 74
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Psyn II promoter

<400> 2
 taaaaaatga aaaaatattc taatttatag gacgggttttg attttctttt tttctatgct 60
 ataaataata aata 74

<210> 3
 <211> 2214
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> HIV env gene

<400> 3

```

atgaaagtga aggggatcag gaagaattat cagcacttgt ggaaatgggg catcatgctc 60
cttgggatgt tgatgatctg tagtgctgta gaaaatttgt gggtcacagt ttattatggg 120
gtacctgtgt ggaaagaagc aaccaccact ctatttttgt catcagatgc taaagcatat 180
gatacagagg tacataatgt ttgggccaca catgcctgtg taccacaga cccaaccca 240
caagaagtag tattggaaaa tgtgacagaa aattttaaca tgtggaaaaa taacatggta 300
gaacagatgc atgaggatat aatcagttta tgggatcaaa gcctaaagcc atgtgtaaaa 360
ttaacccac tctgtgttac tttaaattgc actgatttga ggaatgttac taatatcaat 420
aatagtagtg agggaatgag aggagaaata aaaaactgct ctttcaatat caccacaagc 480
ataagagata aggtgaagaa agactatgca cttttctata gacttgatgt agtaccaata 540
gataatgata atactagcta taggttgata aattgtataa cctcaacat tacacaggcc 600
tgtccaaagg tatcctttga gccaatccc atacattatt gtaccccggc tgggttttgcg 660
attctaaagt gtaaagacaa gaagttcaat ggaacagggc catgtaaaaa tgtcagcaca 720
gtacaatgta cacatggaat taggccagta gtgtcaactc aactgctgtt aaatggcagt 780
ctagcagaag aagaggtagt aattagatct agtaatttca cagacaatgc aaaaaacata 840
atagtacagt tgaaagaatc tgtagaaatt aattgtacaa gacccaacaa caatacaagg 900
aaaagtatac atataggacc aggaagagca ttttatacaa caggagaaat aataggagat 960
ataagacaag cacattgcaa cattagtaga acaaaatgga ataacacttt aaatcaaata 1020
gctacaaaat taaaagaaca atttgggaat aataaaacaa tagtctttaa tcaatcctca 1080
ggagggggacc cagaaattgt aatgcacagt ttttaattgt gaggggaatt cttctactgt 1140
aattcaacac aactgtttta tagtacttgg aattttaatg gtacttggaa tttaacacaa 1200
tcgaatggta ctgaaggaaa tgacactatc acactcccat gtagaataaa acaaattata 1260
aatatgtggc aggaagtagg aaaagcaatg tatgccctc ccatcagagg acaaattaga 1320
tgctcatcaa atattacagg gctaataatta acaagagatg gtggaactaa cagtagtggg 1380
tccgagatct tcagacctgg gggaggagat atgagggaca attggagaag tgaattatat 1440
aaatataaag tagtaaaaat tgaaccatta ggagtagcac ccaccaaggc aaaaagaaga 1500
gtggtgcaga gagaaaaaag agcagtggga acgataggag ctatgttcct tgggttcttg 1560
ggagcagcag gaagcactat gggcgagcg tcaataacgc tgacgttaca ggccagacta 1620
ttattgtctg gtatagtgca acagcagaac aatttgctga gggctattga ggcgcaacag 1680
catctgttgc aactcacagt ctggggcatc aagcagctcc aggcaagagt cctggctgtg 1740
gaaagatacc taagggatca acagctccta gggatttggg gttgctctgg aaaactcatc 1800
tgcaccactg ctgtgccttg gaatgctagt tggagtaata aaactctgga tatgatttgg 1860

```

NIH211C1SEQLIST.TXT

```

gataacatga cctggatgga gtgggaaaga gaaatcgaaa attacacagg cttaatatatac 1920
accttaattg aggaatcgca gaaccaacaa gaaaagaatg aacaagactt attagcatta 1980
gataagtggg caagtttgtg gaattgggtt gacatatcaa attggctgtg gtatgtaaaa 2040
atcttcataa tgatagtagg aggcttgata ggtttaagaa tagtttttac tgtactttct 2100
atagtaaata gagttaggca gggatactca ccattgtcat ttcagaccca cctcccagcc 2160
ccgagggggac ccgacaggcc cgaaggaatc gaagaagaag gtggagacag agac 2214

```

```

<210> 4
<211> 70
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> PmH5 promoter

```

```

<400> 4
aaaaattgaa aataaatata aaggttcttg agggttgtgt taaattgaaa gcgagaaata 60
atcataaata 70

```

```

<210> 5
<211> 3479
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> HIV genes

```

```

<400> 5
atgggtgcga gagcgtcagt attaagcggg ggagaattag atcgatggga aaaaattcgg 60
ttaaggccag ggggaaagaa aaaatataaa ttaaaacata tagtatgggc aagcagggag 120
ctagaacgat tcgcagttaa tctggcctg ttagaaacat cagaaggctg tagacaaata 180
ctgggacagc tacaaccatc ccttcagaca ggatcagaag aacttagatc attatataat 240
acagtagcaa ccctctattg tgtgcatcaa aggatagaga taaaagacac caaggaagct 300
ttagacaaga tagaggaaga gcaaaacaaa agtaagaaaa aagcacagca agcagcagct 360
gacacaggac acagcaatca ggtcagccaa aattacccta tagtgcagaa catccagggg 420
caaatggtac atcaggccat atcacctaga actttaaatg catgggtaaa agtagtagaa 480
gagaaggctt tcagcccaga agtgataccc atgttttcag cattatcaga aggagccacc 540
ccacaagatt taaacaccat gctaaacaca gtgggggggac atcaagcagc catgcaaattg 600
ttaaaagaga ccatcaatga ggaagctgca gaatgggata gagtgcattc agtgcattgca 660
gggcctattg caccaggcca gatgagagaa ccaaggggaa gtgacatagc aggaactact 720
agtacccttc aggaacaaat aggatggatg acaataatc cacctatccc agtaggagaa 780
atttataaaa gatggataat cctgggatta aataaaatag taagaatgta tagccctacc 840
agcattctgg acataagaca aggacaaaaa gaacccttta gagactatgt agaccggttc 900
tataaaactc taagagccga gcaagcttca caggaggtaa aaaattggat gacagaaacc 960
ttgttggtcc aaaatgcgaa ccagattgt aagactattt taaaagcatt gggaccagcg 1020
gctacactag aagaaatgat gacagcatgt cagggagtag gaggaccgg ccataaggca 1080
agagtttttg ctgaagcaat gagccaagta acaaatcag ctaccataat gatgcagaga 1140
ggcaatttta ggaaccaaag aaagattggt aagtgtttca attgtggcaa agaagggcac 1200
acagccagaa attgcagggc ccctaggaaa aagggtgtt ggaaatgtgg aaaggaagga 1260
caccaaatga aagattgtac tgagagacag gctaattttt tagggaagat ctggccttcc 1320
tacaagggaa ggccagggaa ttttcttcag agcagaccag agccaacagc cccaccagaa 1380
gagagcttca ggtctggggg agagacaaca actccccctc agaagcagga gccgatagac 1440
aaggaactgt atcctttaac ttccctcaga tcaactcttg gcaacgaccc ctgctcacia 1500
taaagatagg ggggcaacta aaggaagctc tattagatac aggagcagat gatacagtat 1560
tagaagaaat gagtttgcca ggaagatgga aacaaaaaat gataggggga attggagggt 1620
ttatcaaagt aagacagtat gatcagatac tcatagaaat ctgtggacat aaagctatag 1680
gtacagtatt agtaggacct acacctgtca acataattgg aagaaatctg ttgactcaga 1740
ttgggtgcac tttaaatttt ccattagcc ctattgagac tgtaccagta aaattaaagc 1800

```

```

caggaatgga tggcccaaaa gttaaacaat ggccattgac agaagaaaaa ataaaagcat 1860
tagtagaaat ttgtacagaa atggaaaagg aagggaaaat ttcaaaaatt gggcctgaga 1920
atccatacaa tactccagta tttgccataa agaaaaaaga cagtactaaa tggaggaaat 1980
tagtagattt cagagaactt aataagagaa ctcaagactt ctgggaagtt caattaggaa 2040
taccacatcc cgcagggtta aaaaagaaaa aatcagtaac agtactggat gtgggtgatg 2100
catatttttc agttccctta gatgaagact tcaggaagta tactgcattt accataccta 2160
gtataaacia tgagacacca gggattagat atcagtacaa tgtgcttcca cagggatgga 2220
aaggatcacc agcaatattc caaagtagca tgacaaaaat cttagagcct tttaaaaaac 2280
aaaatccaga catagttatc tatcaataca tgaacgattt gtatgtagga tctgacttag 2340
aaatagggca gcatagaaca aaaatagagg agctgagaca acatctgttg aggtggggac 2400
ttaccacacc agacaaaaaa catcagaaag aacctccatt cctttggatg gggttatgaac 2460
tccatcctga taaatggaca gtacagccta tagtgctgcc agaaaaagac agctggactg 2520
tcaatgacat acagaagtta gtggggaaat tgaataccgc aagtcagatt taccagggga 2580
ttaaagtaag gcaattatgt aaactcctta gaggaaccaa agcactaaca gaagtaatac 2640
cactaacaga agaagcagag ctagaactgg cagaaaacag agagattcta aaagaaccag 2700
tacatggagt gtattatgac ccatcaaaag acttaatagc agaaatacag aagcaggggc 2760
aaggccaatg gacatatcaa atttatcaag agccatttaa aaatctgaaa acaggaaaat 2820
atgcaagaat gaggggtgcc cacactaatg atgtaaaaca attaacagag gcagtgcaaa 2880
aaataaccac agaaagcata gtaatatggg gaaagactcc taaattttaa ctaccatac 2940
aaaaggaaac atgggaaaca tgggtggacag agtattggca agccacctgg attcctgagt 3000
gggagtttgt taatacccct ccttttagtg aattatggta ccagtttagag aaagaacca 3060
tagtaggagc agaaaccttc tatgtagatg gggcagctaa caggagagact aaattaggaa 3120
aagcaggata tgttactaac aaaggaagac aaaagggtgt cccctaact aacacaacia 3180
atcagaaaac tcagttacaa gcaatttatc tagctttgca ggattcagga ttagaagtaa 3240
acatagtaac agactcacia tatgcattag gaatcattca agcacaacca gataaaagt 3300
aatcagagtt agtcaatcaa ataatagagc agttaataaa aaaggaaaag gtctatctgg 3360
catgggtacc agcacacaaa ggaattggag gaaatgaaca agtagataaa ttagtcagtg 3420
ctggaatcag gaaaatacta ttttttagatg gaatagataa ggccaagat gaacattag 3479

```

<210> 6
 <211> 9
 <212> PRT
 <213> Simian Immunodeficiency virus

<400> 6
 Cys Thr Pro Tyr Asp Ile Asn Gln Met
 1 5

<210> 7
 <211> 8
 <212> PRT
 <213> Chicken

<400> 7
 Ser Ile Ile Asn Phe Glu Lys Leu
 1 5

<210> 8
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> probe

<400> 8

ctgtctgcgt catttggtgc

20

<210> 9
<211> 4
<212> PRT
<213> Human immunodeficiency Virus

<220>
<221> VARIANT
<222> (1)...(4)
<223> Xaa = Any Amino Acid

<400> 9
Tyr Xaa Xaa Leu
1

<210> 10
<211> 93
<212> DNA
<213> Artificial Sequence

<220>
<223> m7.5 promoter

<400> 10
cgctttttat agtaagtttt tcacccataa ataataaata caataattaa tttctcgtaa 60
aaattgaaaa actattctaa tttattgcac ggt 93

<210> 11
<211> 74
<212> DNA
<213> Artificial Sequence

<220>
<223> Psyn III promoter

<400> 11
taaaaattga aaaaatattc taatttatag gacggttttg attttctttt tttctatact 60
ataaataata aata 74

<210> 12
<211> 74
<212> DNA
<213> Artificial Sequence

<220>
<223> Psyn IV promoter

<400> 12
taaaaattga aaaactattc taatttatag gacggttttg attttctttt tttctatact 60
ataaataata aata 74

<210> 13
<211> 75
<212> DNA
<213> Artificial Sequence

<220>

<223> Psyn V promoter

<400> 13

aaaaaatgat aaagtaggtt cagttttatt gctggtttaa aatcacgctt tcgagtaaaa 60
actacgaata taaat 75